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VISUAL ESSAY



Supporting Roy's interests: an unconventional journey from the house to the workshop assisted by personalized fall prevention modifications

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ABSTRACT

The relationships between older adults and their home environments are commonly built upon several decades of personal-expression, values and goals. However, fall preventative home modifications often create a dissonance between existing environments and efforts to prevent falls at home. Within this visual essay, a snapshot of one 88-year-old man's life is presented – Roy's daily routine is offered as an example of the inter-relationships between one's own home, personal goals and daily activities. Furthermore, Roy's story provides a poignant example of how clinically co-created individualized solutions as well as 'homemade' approaches to environmental changes can provide a more uplifting home modifications experience for older adults.

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Home modifications; fall prevention; older adults; journey; design

Overview

As human beings age in place, both the value and the role of our home environments become paramount. In many cases, home environments are self-curated over the course of decades by older adults; they are carefully arranged according to one's own values, self-identity and purpose (Plowman, Prendergast, and Roberts 2009). Our homes are not simply four walls where we sleep at night; they are lived-in artefacts, enriched with one's own emotions as well as the emplacement of personal memories and expression.

Unfortunately, with older age comes a greater likelihood for experiencing a fall (Moreland et al. 2004; World Health Organization 2007), the ramifications of which can be extensive. For example, Kenny et al. (2001) state that 'falling is associated with considerable mortality, morbidity, reduced functioning, and premature nursing home admissions' (664). A wide variety of methods to prevent falls are available, such as exercise programmes, assistive technologies and home modifications (Lord et al. 2007).

However, fall preventative home modifications and assistive technologies have the potential to stigmatize older adults and become burdensome upon one's own inter-environmental relationships (Durick et al. 2013; Leonardi et al. 2008; Plowman, Prendergast, and Roberts 2009). Poor uptake of fall prevention recommendations made by occupational therapists and other health service providers continues to be a barrier to preventing falls (Clemson, Cusick, and Fozzard 1999; Currin et al. 2011; Stevens, Holman, and Bennett 2001). Nevertheless, individualized or 'homemade' approaches to fall prevention are common; whilst these approaches may differ from standardized clinical approaches and outcomes, the value of combining clinical knowledge and input with the freedom to design individualized solutions is both insightful and promising.

The following section introduces Roy. Roy's story has been selected from a wider study (Lo Bianco 2017) as it highlights his lived experience of fall prevention modifications within the home that aim to support him in the daily pursuit of his interests. A collection of photographs is presented alongside an accompanying journey narrative. Whilst observation, interviews and journey mapping are common design research methods (Koskinen et al. 2011), design researchers within this domain can also enhance the richness of their findings by combining a design ethnography approach with a fall risk assessment process. Merging these two areas creates an opportunity to better understand people's motivations, practices and dreams in conjunction with their relationship with the environment to create better pathways to achieve meaningful occupation.

Who is Roy?

Roy is 88, and lives at home with his wife, who is also his primary carer. Roy is a retired maker of clocks and watches. His son and daughter have carried on the family business, and his son lives next door.

Roy is quite frail, has a stooped posture, shuffling gait, dizziness, balance problems and lack of strength throughout his body. Over the past 12 months, he has experienced three falls in his home, two of which have resulted in significant injury. He lost his balance and fell backwards in his workshop, and hit his head and bruised his ribs. Roy also fell in the lounge room whilst reaching for a power point.

Roy uses a single-point walking stick and a four-wheeled walker to move around the house and to get to his workshop in the backyard. Walking towards the house there is a gravel driveway, and three steps at the front entrance. The floor is a combination of carpet and floorboards. There are five steps at the rear entrance, and pavers to get to the workshop in the backyard. Roy has several handrails throughout the house.

Roy and his wife purchased their house in the 1950s as a holiday home. It was an old shack back then, in a very green and secluded area. As the years passed, the local area became further developed and urbanized. Being an

environmentally-conscious person, Roy noticed a decline in the number of birds in his area. Therefore, he decided to take it upon himself to begin wood carving birds to document the local birdlife in the area that he loves. Over the years, Roy developed a passion for wood carving, and joined a local wood-turning club; his handiwork has been regularly displayed at local exhibitions.

Roy loves to get into his workshop every day to continue his bird carving, pyrography, and to 'dabble' in clock repair when his son brings them to him to work on at home (see [Figure 1](#)). To get to the workshop, he follows a path through the house that has been fitted with assistive handrails that were installed and, in some cases created, by his son under the recommendation of an occupational therapist.

In the following section, Roy's home environment is depicted and explored through a series of photographs.

Roy's daily journey

Roy occupies himself each day by going into his workshop and *pottering about*. Whether it be bird carving or clock repair, these primary activities as well as the micro activities underpinning them, sustain him and his sense of independence daily. Roy says: 'My son is very good; he makes all sorts of handrails and supports for me to get around and get out to the shed without any bother.' In Roy's case, the homemade handles convey a sense that he is being cared for; they have



Figure 1. Roy's house is filled with clocks and bird carvings he has crafted.

positive connotations and sentimental meaning. Furthermore, a walk-through of Roy's house is a rich example of how goals can be manifest in assistive devices and home modifications in a physical house.

The following is an overview of the way Roy typically moves from his lounge room through the house to get to his workshop – two areas where he spends most of his time.

Figure 2 shows Roy's four-wheeled walker, which he usually uses to move around the house. From the chair in the lounge room, Roy must raise himself, bring the walker into position and walk approximately eight metres towards the back of the house.

When Roy arrives at the single step down that leads to the back of the house (Figure 3), he leaves his walker on the carpeted area, and then reaches around the door frame and grabs onto a wooden handrail that his son created and



Figure 2. Roy's walker, which he uses to move around most parts of the house.

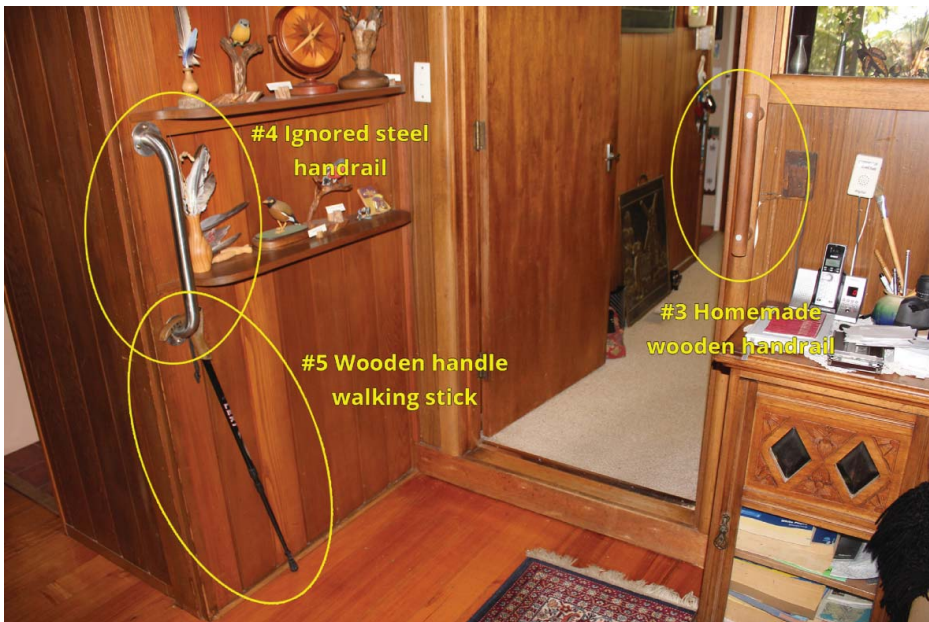


Figure 3. Single interior step leading to the rear access of the house.

installed for him. Roy proudly stated: *'That's the handle that my son made.'* Roy then reaches across to grab his walking stick and does not use the opposing steel handrail for support. When questioned why he abandoned using the steel rail, he said: *'It's because I like wood; that's cold (pointing at the steel rail), and the wood is warm.'* Roy then uses the walking stick to continue to the back of the house.

The back door leads to five stairs that go down to the paved and grassy area (Figure 4). Under the general recommendation of an occupational therapist, Roy's son installed another handrail to help his father go down the back stairs; it is an old mop handle. Roy said: *'Since my son put that old mop handle up – it doesn't look like much but it is amazing how it helps. It makes you feel more secure. I like the mop handle.'* This exemplifies how occupational therapy recommendations and positive individually-tailored solutions can positively complement each other and increase acceptance. Roy traverses the stairs with the walking stick in his left hand, whilst his right hand holds onto the mop handle.

A left turn at the bottom of the stairs leads to a pathway made of pavers (Figure 5). The pathway is accompanied by a railing that is approximately three metres in length. The railing is a light pole that had fallen down, and was salvaged by Roy's son from the local supermarket car park. His son then installed it in the backyard for his father. Roy proudly stated: *'My son picked it up and thought it would come in handy for something... He's a real scrounger.'* Roy travels the pathway with his walking stick in his left hand and his right hand on the light pole. When Roy comes to the end of the pathway, he lets go of the light pole,



Figure 4. View from the back door looking down the steps.



Figure 5. View from the workshop looking back towards the steps.

ignores the steel handrail and supports himself on the door handle as he enters the workshop.

In the workshop, Roy moves around with the assistance of his walking stick, and with the support of the nearby benches and equipment (Figure 6).

The workshop is full of past and present projects that Roy is working on (Figure 7). Continuing these activities in his workshop is important and meaningful for him; he makes this challenging walk to the workshop every day to continue doing what sustains him. This is the goal that motivates him to start the journey from the living room.

Concluding comments

Whilst a single story has been presented, it does highlight a common theme within older adult home modifications. Roy's efforts to both retain and exert control over his physical environment are not uncommon. The connection between an older adult's perception of control is directly linked to greater compliance rates with fall prevention recommendations made by occupational therapists (Clemson, Cusick, and Fozzard 1999). In Roy's case, the ability to draw clinical feedback from an occupational therapist and have his son build his modifications created affirmative artefacts throughout the house, whereas the traditionally clinical elements – such as the steel handrail – were dismissed and forgotten. Additionally, the homemade rails make him feel cared about by his son, which is a key motivation for the affective take up of assistive technologies (Pedell et al. 2014). Moreover, Vaisutis et al. (2014) highlight the importance of



Figure 6. Inside Roy's workshop.



Figure 7. Roy's current bird carving project.

objects that provide independence or symbolize relationships with loved ones – a combination being the case here.

Without these positive assistive artefacts connected to personal stories from his family in the home, it would be difficult to ascertain how Roy would be able to move throughout the space, get to the shed and keep on *pottering about*. Following interests on a regular basis is important. It has been shown that older adults who are able to keep physically and mentally active prevent health decline (Voelcker-Rehage, Godde, and Staudinger 2011).

Therefore, the ability for the occupational therapist to provide input and support the co-creative nature of Roy's rails is highly positive. Whilst these installations fail to comply any sort of disability design building code or standardization, their value to Roy remains both functional and personally motivating – not only to start the journey to his workshop but to continue his goals.

Disclosure statement

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Notes on contributors

Michael Lo Bianco is a Postdoctoral Research Fellow within the Centre for Design Innovation's Future Self and Design Living Lab, a research network focused on the development of

enabling technologies for the health and well-being of older adults. Michael's PhD investigated older adult engagement in fall prevention services, specifically addressing the design communication methods between clinicians and older adults. Outcomes include a clinical augmented reality design tool to assist occupational therapists in communicating home modifications; a fall prevention service model is also offered which guides the utility of the tool in a person-centred manner.

Sonja Pedell is Director of Swinburne's Future Self and Design Living Lab, where her research contributes extensive knowledge of human-computer interaction and research methods to the co-design and development of innovative technologies and services. She is also Department Research Director for Swinburne's Department of Communication Design and Digital Media Design. Sonja's research interests include user-centred design methods, scenario-based and mobile design, domestic technology development and the design of engaging novel technologies for various user groups, in particular for the ageing population and people living with dementia.

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